

A New *Stiliger* and a New *Corambella* (Mollusca : Opisthobranchia) from the Northwestern Pacific

BY

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(Plate 6; 10 Textfigures)

The opisthobranch fauna of the Pacific Coast of North America includes a large number of species readily identified in the living state by their diversity of external morphological features and spectacular coloration. On the other hand, a not insignificant number of new species has been collected from this area, species which are so inconspicuous as to be only accidentally detected. While some of these unobtrusive forms are rare, or at best occur sporadically in conservative numbers, a few others form enormous annual populations in their respective habitats.

The present paper is a result of investigations carried out on two new, inconspicuous species which are both extremely abundant, confined to entirely different habitats, and both represent genera new to the northwestern Pacific Coast.

I am very grateful to the Scripps Institution of Oceanography, Marine Life Research Program, for providing funds for the color plate, and to Dr. and Mrs. G Dallas Hanna of the California Academy of Sciences for its expert execution. It should be noted that both animals have been photographed non in situ in order to provide contrasting background.

SACOGLOSSA

Elysiacea

HERMAEIDAE

Stiliger fuscovittata LANCE, spec. nov.

(Plate 6, Upper Figure; Textfigures 1 to 5)

Many individuals of this species have been collected during every season over a period of several years. During the autumn and winter months they are rare; in the spring and summer large numbers may be found in the appropriate biotope.

The largest individual measured was 10.2 mm. long and 1.1 mm. broad; the smallest

specimen measured 1.7 mm. long and 0.2 mm. broad. The average size of sexually mature individuals at the height of the spawning season is 7.6 mm. in length and 0.85 mm. in width. The holotype, upon which this description is based, was 8.0 mm. long and 0.9 mm. broad. All measurements given are for actively crawling animals.

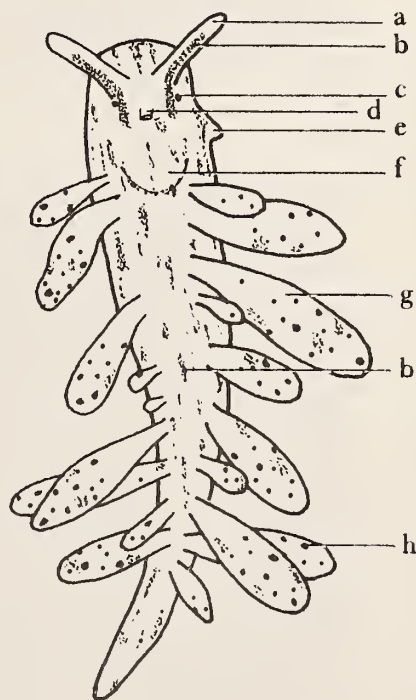


Figure 1: *Stiliger fuscovittata* LANCE, spec. nov.

Dorsal view of living animal

- a. rhinophore
- b. pigmented area
- c. eye spot
- d. anus
- e. genital papilla
- f. pericardial prominence
- g. ceras
- h. cutaneous gland

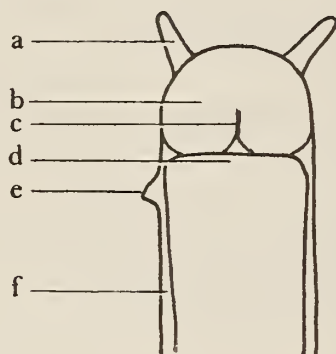


Figure 2: *Stiliger fuscovittata* LANCE, spec. nov.

Antero-ventral view of living animal

- a. rhinophore
- b. oral lobe
- c. mouth
- d. anterior foot margin
- e. genital papilla
- f. side of body

The body in general shape is eolidiform, broadest in front, and tapering to an elongated, bluntly rounded tail (Textfig. 1). In some individuals the tail may appear considerably shorter due to the presence of a few small cerata occurring almost to the tip. The back is rounded, not at all marked off from the vertical sides of the body.

At its anterior margin, the foot is as broad as the body, becoming progressively narrowed posteriorly. There are neither foot tentacles nor a median notch (Textfig. 2). In its ventral aspect, the head consists of two large, inconspicuous lobes with the mouth appearing in the middle as a longitudinal slit.

The cerata are arranged in two single series along either side of the back near its lateral edges. They arise at the antero-lateral margins of the pericardial prominence and run posteriorly, alternating or not. Considerable variation in size, shape and number occurs between one individual and another. Although detailed observations on large numbers of specimens have been made, the irregular alternation of the highly deciduous cerata is without pattern and is undoubtedly a result of varying stages of ceratal regeneration. The holotype, which represents the typical condition, has nine in the left row and ten in the right. The liver is brown, slender, rope-like and runs under the right and left rows of cerata. Each cerata receives a conspicuous unbranched diverticulum not quite reaching the tip. Several large cutaneous glands occur most abundantly in the middle and distal portions of

most cerata, and appear as conspicuous white spots. Similar but smaller glands are abundant on the anterior portion of the sides of the body.

The rhinophores are non-retractile, smooth and taper to blunt tips. They are neither auriculate nor flattened. Each arises about half way up the sloping antero-lateral end of the body and points obliquely forward in life.

The conspicuous black eye spots are present immediately behind the rhinophores in regions free of epidermal pigment. In some individuals the eye spots border pigmented areas, but in no instance do they occur beneath such areas. The anus is located on a slightly elevated papilla on the mid-dorsal line immediately posterior to the eye spots. This position is considerably more anterior than that reported for other members of the genus. The genital papilla is prominent in living individuals and occurs slightly posterior to the anus about half way up the right side of the body. In life, the aperture faces somewhat posteriorly.

The radula consists of seven teeth in the ascending, 23 in the descending limb and about four undifferentiated elements in the spiral ascus (Textfig. 3). Little variation in teeth number in several individuals examined was observed. The figured radula is from a paratype of equal size in order to retain the holotype intact.

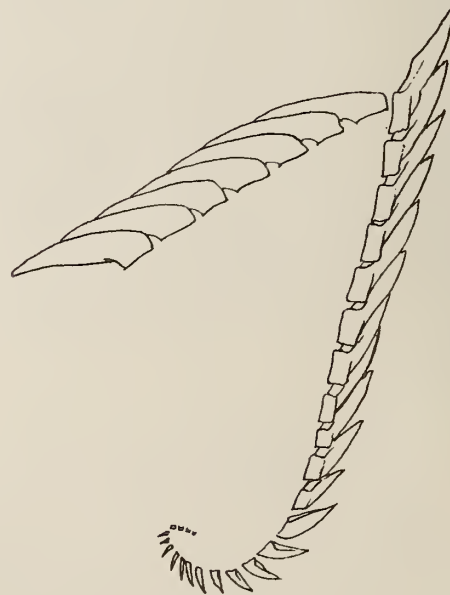
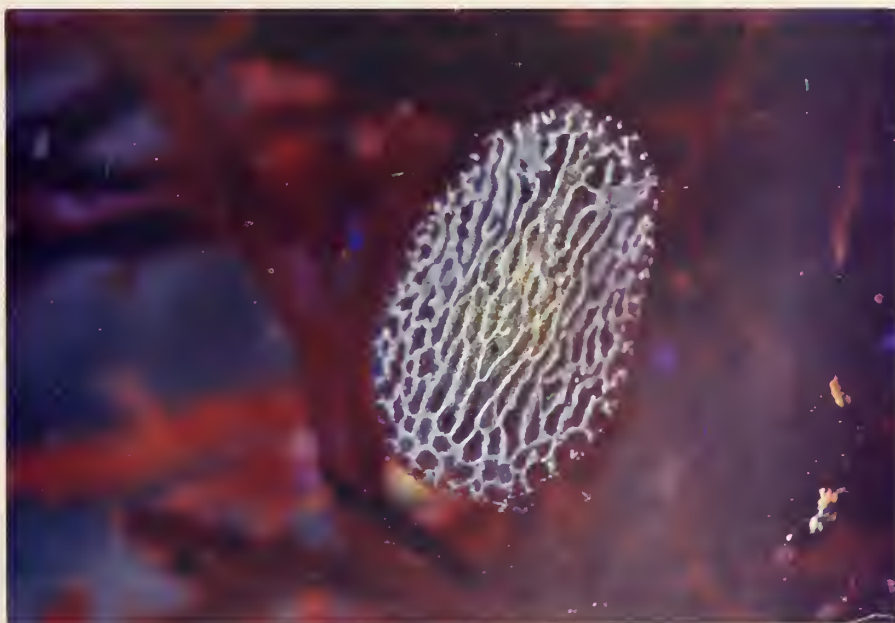


Figure 3: *Stiliger fuscovittata* LANCE, spec. nov.

Radula, x 128



Stiliger fuscovittata LANCE, spec. nov.



Corambella steinbergae LANCE, spec. nov.

The body is nearly transparent and many of the internal organs may easily be observed without clearing. The reddish-brown pigmentation varies between individuals in intensity, amount and pattern but not in basic color. The most constant feature of the pattern is two stripes, each of which arises about one third of the distance from the distal end of the rhinophore, runs to its base, and proceeds posteriorly on the back for a short distance, flanking the eye spot. Numerous streaks and splotches occur over the rest of the body (except on the foot sole which is colorless), and to a lesser degree on the cerata. As mentioned above, the cutaneous glands of the cerata form conspicuous white spots. Microscopic examination of the epidermis in the pigmented region reveals that the pigment flecks are gathered into a mosaic-like pattern (Textfig. 4). A dingy pale yellow color often occurs on the tip of the tail, distal portion of the rhinophores, and median region of the mouth lobes.

This species has been collected only in San Diego and Mission Bays, where it feeds exclusively on the red alga *Polysiphonia pacifica* Hollenberg (1942) (identified by Mr. David Chapman of the Scripps Institution of Oceanography), which is common on pilings and boat landings. Gonor (1961, pp. 86 and 95) has summarized the observations of several authors concerning the specificity of different species of *Sacoglossa* to one or a few closely related species of algae. Thus it is not surprising to find the present *Stiliger* occurring exclusively on *P. pacifica*.

The egg capsules are thick, sausage shaped, exhibit considerable variation in length and amount of spiraling, and layed among the algal mass (Textfig. 5). The height of spawning is reached during May to July.

The specific name *fuscovittata* was chosen to call attention to the brownish streakings which constitutes the principal coloration of this species.



Figure 4: *Stiliger fuscovittata* LANCE, spec. nov.
Detail of pattern in pigmented area, x 212

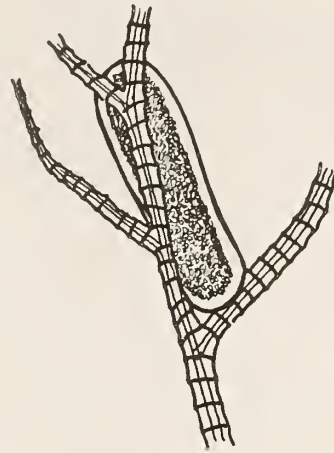


Figure 5: *Stiliger fuscovittata* LANCE, spec. nov.
Egg capsule in situ

Type locality: Mission Bay, San Diego, California; on *Polysiphonia pacifica* Hollenberg, 1942. Lat. 32° 42' N., Long. 117° 11' W.

The holotype is deposited at the California Academy of Sciences, where it is registered as Paleo. Type Coll. No. 12 403; it will be incorporated into the Frank Mace MacFarland Memorial Collection of Nudibranchs.

NUDIBRANCHIA

Doridacea

EUDORIDACEA

Phanerobranchia

SUCTORIA

CORAMBIDAE

Corambella steinbergae LANCE, spec. nov.

(Plate 6, Lower Figure; Textfigures 6 to 10)

Synonymy:

Corambella spec., STEINBERG, 1960;

Corambella spec., LANCE, 1961.

Numerically, this kelp-inhabiting species is one of the most abundant nudibranchs along the coast of southern California, and, if local population size is typical, it must occur in enormous numbers throughout its entire range. Sixty-eight individuals have been counted from a single kelp frond during the height of its spawning season.

The largest individual measured was 8.2 mm. long and 5.1 mm. wide. During the spawning season minute individuals measuring only 0.12 mm. in length are commonly observed

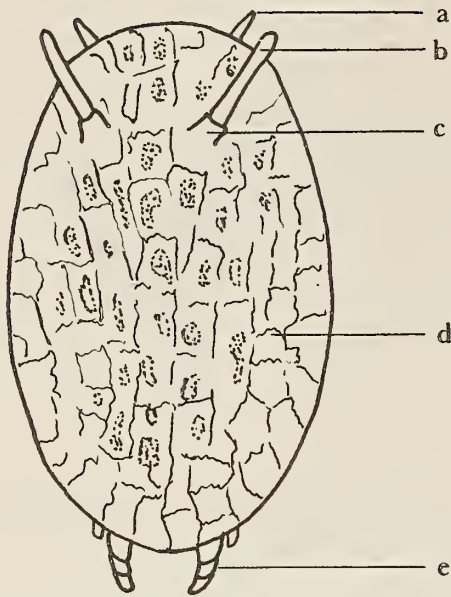


Figure 6: *Corambella steinbergae* LANCE, spec. nov.

Dorsal view of living animal

- a. oral tentacle
- b. rhinophore
- c. rhinophore sheath
- d. notum
- e. posterior gill

when small pieces of kelp are examined under a dissecting microscope. These small specimens represent that portion of the population which has only recently metamorphosed. When crawling, the holotype was 5.3 mm. long and 3.2 mm. wide, which is average for a sexually mature individual.

The general body form is oval, disc shaped and flattened when the animal is stationary, but somewhat more elongate and broader behind than in front when moving (Textfig. 6). The notum is broad, only slightly arched in the middle of the body, and flat and thin where it projects well beyond the foot margins. As in other members of the genus, its border is entire, not notched. A deciduous cuticle, similar to that described for other *Corambidae* occurs as the outer notal layer (see p. 9 in MacFarland and O'Donoghue, A new species of *Corambe* from the Pacific Coast of North America. Proc. Cal. Acad. Sci. ser. 4, 18(1): 1-27, 1929). The heart is located about two thirds of the way back on the midline of the body.

The foot is oval, rounded posteriorly, never extending beyond the lateral notal margins, and in some individuals is entire along the anterior edge (Textfig. 7). In other specimens an emargination is present, but never so pronounced as

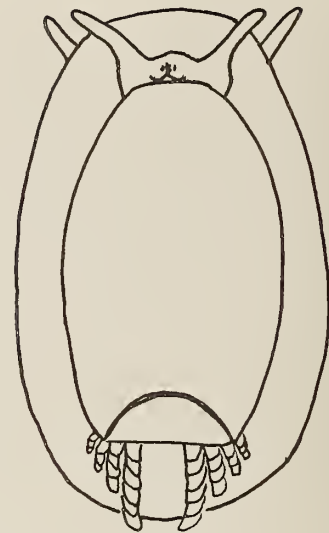


Figure 7: *Corambella steinbergae* LANCE, spec. nov.

Ventral view of living animal

in *Corambe pacifica* MacFarland & O'Donoghue, 1929. The presence or absence of a foot notch cannot be a specific characteristic since it occurs in varying degree.

The branchiae are posterior, attached to the underside of the notum at the juncture between the notum and the foot; they number 3 to 6 on either side of the median line in typical individuals. The two large posterior gills and the

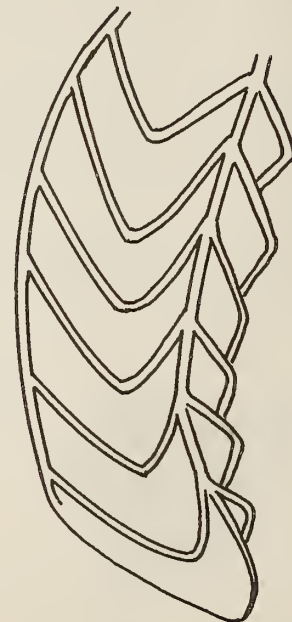


Figure 8: *Corambella steinbergae* LANCE, spec. nov.

Detail of large gill